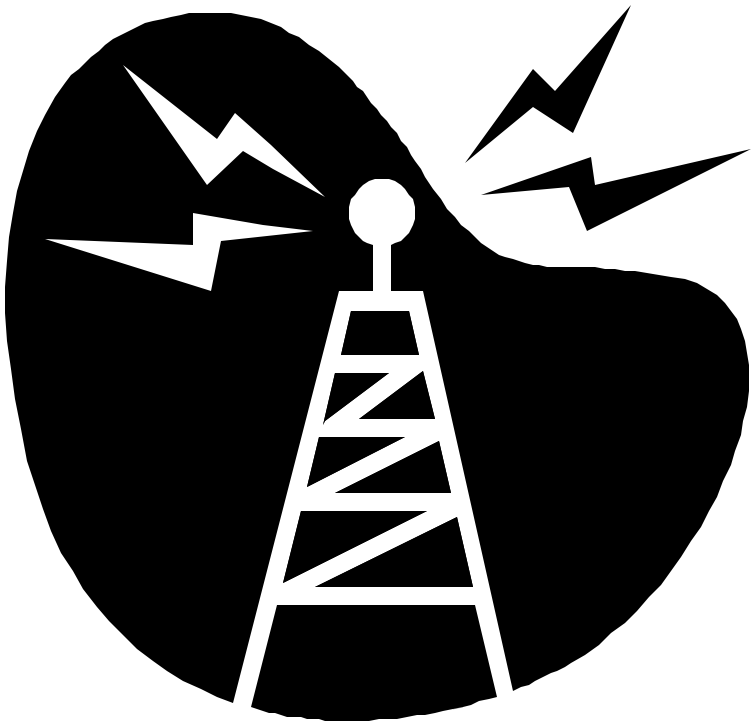
WISCONSIN
EMERGENCY MEDICAL SERVICES
COMMUNICATIONS PLAN



Department of Health and Family Services
Division of Public Health
EMS Systems and Licensing Section

Revised 3/2003

Introduction

The Wisconsin Emergency Medical Services (EMS) Communication Plan is both a communications guide for EMS providers and an overview of requirements for local EMS systems to assure that a statewide communication system is in place that can address daily needs as well as large scale multi-casualty situations. This document was created with input from an ad-hoc committee attached to the EMS Advisory Board and the Bureau of EMS and Injury Prevention, Division of Public Health, Department of Health and Family Services. The committee met for several months in 2001 and 2002 and presented a draft to the EMS Board in July 2002. The EMS Board reviewed the document and added comments, which were either added or addressed in discussions with the Board. The EMS Board officially approved the final version in September 2002.

The document is intended to serve three purposes:

1) Provide an overview of EMS Communications
2) Provide specific information on EMS communications in Wisconsin
3) Serve as a "users manual" for providers in creating and maintaining their EMS communications

The first section provides general information on what is involved with communications between prehospital health care providers [Emergency Medical Technicians (EMTs) and First Responders] and the other entities they need to communicate with on a regular basis. This includes communications with hospitals, other EMS providers, and other public safety agencies.

The second section addresses specific information about EMS in Wisconsin. It includes an overview of how communication occurs and the radio frequencies and Federal Communication Commission rules that pertain to Wisconsin EMS providers.

The third section is a guide to EMS providers about the laws and provider requirements that govern EMS communications. This section includes information on required radio frequencies, recommended equipment needs and a set of questions for providers to consider in setting up their communication system.

Questions about this document or other EMS communication questions should be sent to:

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GLOSSARY:

911 – A three-digit emergency telephone number accepted and promulgated by the telephone industry as the nationwide emergency number.

911 Enhanced – A three-digit emergency telephone number that has additional features such as automatic phone number identification and automatic location identification.

Advanced life support or "ALS" means use, by appropriately trained and licensed personnel, in prehospital and interfacility emergency care and transportation of patients, of the medical knowledge, skills and techniques included in the department-approved training required for licensure of emergency medical technicians-intermediate under Administrative Code ch. HFS 111 or emergency medical technicians-paramedic under Administrative Code ch. HFS 112 and which are not included in basic life support

Base station - an item of fixed radio hardware consisting of a transmitter and a receiver.

Basic life support or "BLS" means emergency medical care that is rendered to a sick, disabled or injured individual, based on signs, symptoms or complaints, prior to the individual's hospitalization or while transporting the individual between health care facilities and that is limited to use of the knowledge, skills and techniques received from training under s. 146.50, Wisconsin Stats. and Administrative Code ch. HFS 110 as a condition for being issued an EMT-basic license.

Call sign – Federal Communications Commission assigned identifying letters and numbers used for identification of a radio station, transmitter, or transmission.

Communications system – a collection of individual communication networks, transmission systems, relay stations, control and base stations, capable of interconnection and interoperations that are designed to form an integral whole. The individual components must serve a common purpose, be technically compatible, employ common procedures, respond to control, and operate in unison.

Continuous tone-controlled squelch system (CTCSS) – a system wherein radio receiver(s) are equipped with a tone-responsive device that allows audio signals to appear at the receiver audio output only when a carrier modulated with a specific tone is received. The tone must be continuously present for continuous audio output. CTCSS functions are sometimes referred to by various trade names, such as Private Line or PL (Motorola Communications & Electronics), Channel Guard or CG (General Electric Mobile Radio Department), Quiet Channel (RCA) or Tone Call Guard or TCG (E.F. Johnson).

Coverage area – in a radio communications system, the geographic area where reliable communications exist; usually expressed in terms of miles extending radically from a fixed radio station.

Direct dispatch method – a system in which all 9-1-1 call answering and radios dispatching is performed by the personnel at the public safety answering point.

Emergency medical dispatch center: Any agency that routinely accepts calls for EMS dispatcher assistance from the public and/or that dispatches pre-hospital emergency medical personnel and equipment to such requests.

Emergency medical dispatcher (EMD) – a trained public safety telecommunication with additional training and specific emergency medical knowledge essential for the efficient management of emergency medical communications.

Emergency medical service (EMS) – the service used in responding to the perceived individual need for immediate medical care in order to prevent loss of life or aggravation of physiological or psychological illness or injury.

Emergency medical service system (EMSS) – a coordinated arrangement of resources (including personnel, equipment and facilities) organized to respond to medical emergencies, regardless of the cause.

Emergency Medical Technician – basic – an individual who is licensed by the Department of Health and Family Services to administer basic life support and to properly handle and transport sick, disabled or injured individuals.

Federal Communication Commission (FCC) – a board of seven commissioners appointed by the president under the Comminations Act of 1934 to formulate rules and regulations and to authorize use of radio communications. The FCC regulates all communications in the United States by radio or wireline, including television, telephone, radio, facsimile and cable systems.

First Responder - a person who provides emergency medical care to a sick, disabled or injured individual prior to the arrival of an ambulance.

Frequency – the number of cycles, repetitions, or oscillations of a periodic process completed during a unit of time. The frequency of waves in the electromagnetic spectrum (radio waves) is designated in hertz (HZ), kilohertz 9khz = 1000 Hz). One hertz is equivalent to one cycle per second.

Frequency coordination – the cooperative selection and allocation of radio frequencies such that all systems can operate with minimum interference.

Intercept the transfer of care of a patient between an ambulance and an air medical provider or ALS provider that can provide a higher level of medical care.

MARC - Mutual Aid Radio Channels (MARC 1 & 2) are statewide interoperability frequencies. used for communication between public safety agencies and providers.

Medical control or on-line medical control - means voice communicated medical direction from a physician to EMT personnel to assist in the care provided by EMT personnel in the field.

Mobile station – a two-way radio station in the mobile service intended to be used while in motion or during halts at unspecified points.

Paging – a one-way communications service from a base station to mobile or fixed receivers that provide signaling or information transfer by such means as tone, tone-voice, tactile, optical readout, etc.

Pre-arrival Instructions: Instructions given by the dispatcher to the caller to assist the caller in keeping the patient from injuring him/herself further and to give the caller life saving information and/or instruction to potentially aid a patient in a life-threatening situation prior to the arrival of medically trained professionals.

Private line (PL) – Motorola's trademarked name for continuous tone-controlled squelch system, CTCSS.

Radio – the transmission and reception of signals by means of electromagnetic waves without a connection wire.

Regional EMS system – an emergency medical service area (trade, catchment, market, patient flow, geographic or governmental) that provides essentially all of the definitive emergency medical care for all emergencies and for the most critically ill and injured patents within the area.

Tone code – a specified character of transmitted tone signals required to effect a particular selection or function.

Ultra High Frequency (UHF) – frequencies between 300 and 3000 MHz.

Very High Frequency (VHF) – frequencies between 30 and 3000 MHz.

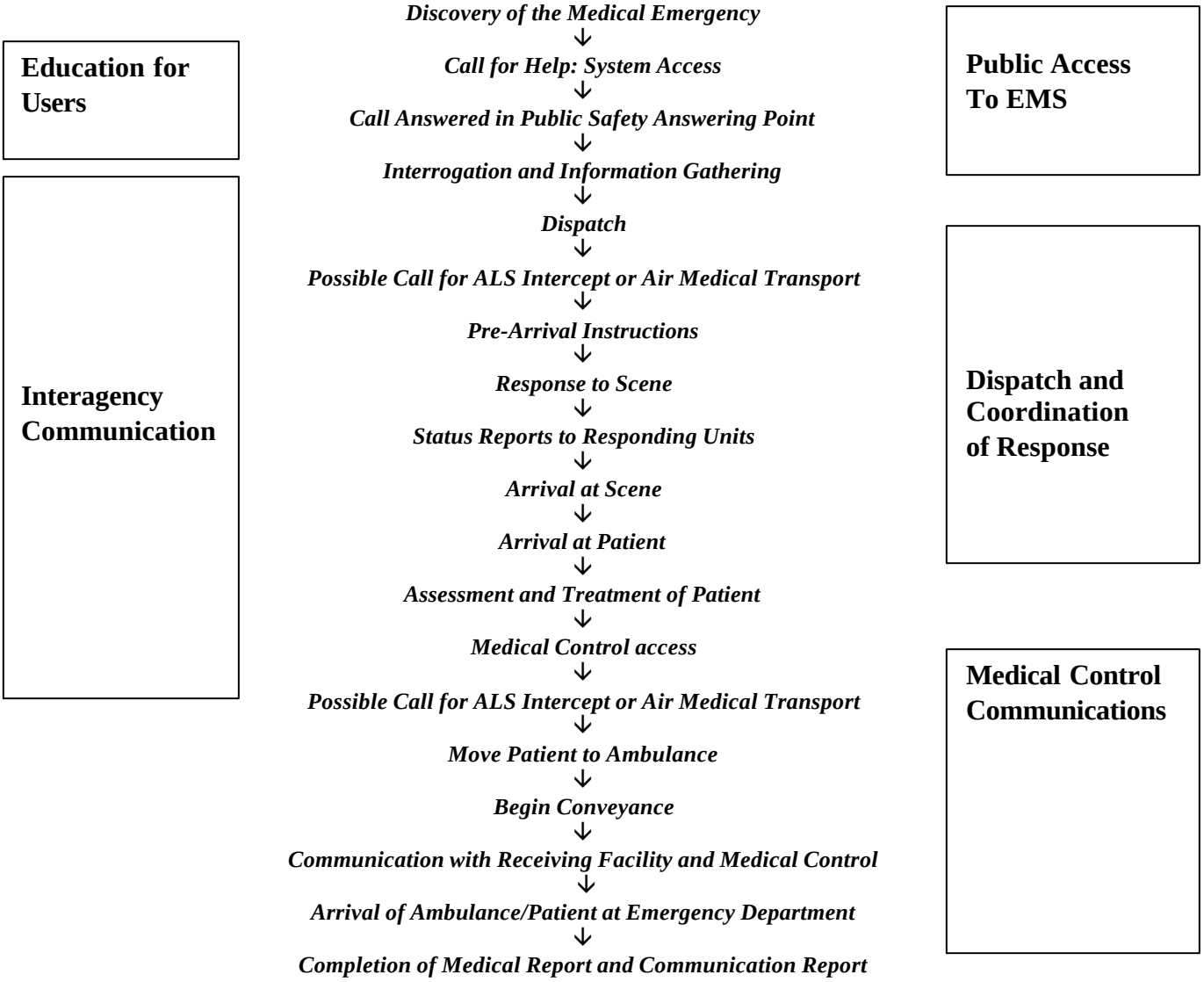
SECTION 1 – COMMUNICATION SYSTEM COMPONENTS

1.0 Introduction

An Emergency Medical Services (EMS) communication system must take into account many factors. The goal of being able to exchange key information for the EMS system to function is dependent on a system that takes into account five key components:

- ❑ Public Access to EMS
- ❑ Dispatch and Coordination of Response
- ❑ Medical Control Communications
- ❑ Interagency Communication (for resource and disaster coordination)
- ❑ Education for Users

Figure 1: **Flow of Prehospital EMS highlighting role of Emergency Medical Communication**



1.1 Public Access to EMS

An essential component of an EMS communication system is public access to the three-digit public safety phone number 911. This is achieved through the use of 911 public safety answering points (PSAPs) which route all emergency calls to the appropriate agency. Enhanced 911 (E911) has additional features beyond the basic 911 system that include:

- Selective routing of the call to the appropriate center based on originating location.
- Automatic number identification (ANI) and automatic location identification (ALI) of the caller

Cellular telephone access to 911 is still problematic because enhanced 911 features are not functional without additional infrastructure. The location of the caller and routing of the message to the appropriate EMS service are still dependent on verbal information from the caller, which may lead to delayed response times.

1.2 Dispatch and Coordination of EMS Response

After notification of a call is received, the next component is to dispatch the appropriate EMS unit to the scene. There are a variety of dispatch methods in Wisconsin. Law enforcement agencies or agencies with combined law enforcement, fire, and EMS responsibilities provide the bulk of EMS Communications. Many (approximately half) of the persons providing these services in Wisconsin have completed some type of formal training as an EMS Communicator.

Central medical dispatch's primary function is service coordination. This includes: (1) access to EMS from the incident, (2) dispatch and coordination of EMS resources, (3) coordination with medical facilities and (4) coordination with other public safety services.

Pre-arrival medical instructions are an important aspect of EMS Communications. However, it may be difficult for a communicator in a multifunctional agency to provide pre-arrival instruction while simultaneously being responsible for other functions. The time and cost of training associated with the provision of medical instructions prior to the arrival of the ambulance requires an additional commitment from the dispatch center that includes initial and continuing education and quality improvement activities. Because the provision of pre-arrival instructions constitutes indirect patient care, the WI EMS Advisory Board has recommended that EMS Communicators be licensed as competent to practice these skills by the State.

Ambulance and field personnel should also be trained in the use of communication equipment. This would include, but is not limited to:

- The ability to use all the communication equipment for the ambulance
- The ability to communicate accurate patient care reports

1.3 Medical Control Communications

Medical control communications provides field personnel with a direct link to relay information to and receive medical advice from a hospital or other health care facility. In some cases, it might also include biomedical telemetry of EKG information directly to the facility while the patient is in route. Medical control has been primarily done via radios in the past, but cellular telephones are being used in more cases. The pros and cons of cellular phone use are summarized in Section 3.3.

The degree to which medical control communications is utilized varies by areas of the state. Factors that influence how much medical control is used includes geographical factors and the degree that standing orders are allowed by the ambulance service medical director.

1.4 Interagency Communication (for resource and disaster coordination)

There are a number of reasons why coordination of interagency communications is an important piece of the Wisconsin State EMS Communication Plan. Basic reasons for interagency communications include resource and disaster response coordination, which optimizes the ability to

communicate with other agencies when necessary, but avoids interference with other agencies when a response is specific to only one agency.

The need for interagency communications can be illustrated by the following list of possible communication paths:

- Hospital to hospital
- Ambulance to hospital
- Ambulance to ambulance
- Ambulance to dispatch
- Hospital to dispatch
- First responder team to medical control
- First responder team to ambulance
- First responder team to dispatch
- Helicopter to hospital
- Ambulance to helicopter
- Helicopter to dispatch
- Telemetry from ambulance
- Medical control to ambulance
- Communication between all public safety agencies

1.5 Education for Users

A communications system is only as good as the people using it. People need to be educated in each component of the system for it to work as efficiently as possible. In the case of EMS communications, knowledge of how and when to access the system and activate an EMS response is essential. Continued public education efforts are needed to help in this area.

SECTION 2 – STATE EMS COMMUNICATIONS PLAN

2.0 ADMINISTRATIVE OVERVIEW - State Authority

Wisconsin Statutes 146.53 (5)(a) establishes the Wisconsin Department of Health and Family Services as the lead state agency for Emergency Medical Services (EMS). Wisconsin Statutes 146.50(13) provides substantial authority for rule writing to plan and implement guidelines for EMS systems and to provide technical assistance to local EMS agencies. A major component of each of the EMS licensing rules is development and submission of an operational plan for each ambulance service, which include a communication component.

Additionally, statewide planning for coordinated use of radio frequencies for EMS communications is necessary so individual efforts do not become counterproductive to the system. The Federal Communications Commission (FCC) and Emergency Medical Radio Service (EMRS) rules require that frequency coordination comply with state EMS communications plans where they exist.

The State EMS Systems and Licensing Section currently provides limited assistance to Wisconsin EMS providers and agencies with radio licensing and frequencies. FCC license applicants for Emergency Medical Radio Service frequencies submit a request to the State EMS Systems and Licensing Section describing their proposed application and request a letter of support. If the request is in conformance with the state EMS plan, the State EMS Systems and Licensing Section will provide a letter of support, which the applicant then submits to the national frequency coordinator.

Specific information on FCC license requirements and steps to follow in obtaining a license can be found on page 15.

Goals for a State EMS Communications System

There are five fundamental goals identified in the National EMS Directors Planning Guide for Emergency Medical Communications.[1] The five goals are:

1. EMS Communications systems should meet the needs of emergency medical systems and nationally accepted standards of functional performance.
2. Local EMS communications should be compatible with, and should not interfere with EMS communications systems in neighboring or adjacent areas and within the state or in other geographical areas.
3. Local EMS communication systems should be compatible with, and should not interfere with, other types of communications systems that are used by non-EMS agencies.
4. EMS communications should make maximum use of state and other common resources, where this approach is appropriate and cost-effective.
5. The State EMS Systems and Licensing Section acts as the representative of local EMS systems in dealing with federal agencies and national organizations.

In Wisconsin this means that local services need to follow some minimum standards that ensure communications can occur, that there is oversight of how communications occur on a regional and statewide basis to avoid conflicts and allow for interagency communications, that communication costs are high and resources must be shared to implement and maintain a communications system

[1] Planning Emergency Medical Communications, National Association of EMS Directors and National Highway Traffic Safety Administration, June 1995.

and that the State EMS Systems and Licensing Section must serve as a advocate and communications conduit between federal agencies and local systems.

EMS COMMUNICATION ELEMENTS – The following sections describe the key elements of the State EMS Communications Plan. The EMS communications system must provide the means by which emergency medical resources can be accessed, mobilized, managed, and coordinated in both day-to-day and disaster situations.

2.1 Public Access to EMS

The Wisconsin EMS communications system's goal is to assure a system whereby all individuals should be able to summon help rapidly in an emergency situation whether for medical, police, fire, rescue, or other emergency need.

Current 911 coverage in Wisconsin covers 99.99% of the State. Statewide E911 or Enhanced 911 coverage is 98.76% of Wisconsin. Work needs to continue to make E911 statewide & include the ability to locate wireless calls to their actual physical location. A map illustrating Wisconsin's 911 overage can be found in Appendix E. The 911 system is the recommended means of accessing the EMS system. Service areas that have 911 coverage should only allow the use of other means of access as back-ups in case of 911 failure. Service areas should not allow seven-digit telephone number advertising for emergency ambulance service access where 9-1-1 is available.

Cellular telephone access to 911 is still problematic because enhanced 911 features are not functional without additional infrastructure. The location of the caller and routing of the message to the appropriate EMS service are still dependent on verbal information from the caller, which may lead to delayed response times.

2.2 Dispatch and Coordination of Response

There are a variety of dispatch methods in Wisconsin. Law enforcement agencies or agencies with combined law enforcement, fire, and EMS responsibilities provide the bulk of EMS Communications. Many of the persons providing these services in Wisconsin have completed some type of formal training as an EMS Communicator.

The communication center's primary function is service coordination. This includes: (1) access to EMS from the incident, (2) dispatch and coordination of EMS resources, (3) coordination with medical facilities and (4) coordination with other public safety agencies.

Pre-arrival medical instructions are an important aspect of EMS Communications. However, it may be difficult for a communicator in a multifunctional agency to provide pre-arrival instruction while simultaneously being responsible for other functions. The time and cost of training associated with the provision of medical instructions prior to the arrival of the ambulance requires an additional commitment from the dispatch center that includes initial and continuing education and a quality improvement activities. Because the provision of pre-arrival instructions constitutes indirect patient care, the WI EMS Advisory Board has recommended that EMS Communicators be licensed as competent to practice these skills by the State.

2.3 - Medical Control Communications

The EMS communications system must provide EMS field personnel (Advanced and Basic Life Support) with a channel for communication that permits the exchange of vital medical information between EMS responders and medical control and the receiving medical facility, if different. This

can be done through a variety of mechanisms (radio frequencies and cell phones) and may be dependent on local needs and resources. Additional means of communication such as digital phones and satellite communications will likely be future options.

Although many protocols are executed by standing orders, contact with medical control is still needed or required for certain procedures or conditions. When to contact medical control is determined by the ambulance service medical director and approved by the State EMS Systems and Licensing Section as part of the service's operational plan required under Administrative Code HFS 110.08, 111.07 and 112.07.

The ability to communicate with medical control is a requirement for all ambulance services. The ability to talk with medical control from the patient's side is an additional requirement at the EMT-intermediate and EMT-paramedic levels.

Telemetry– Telemetry uses the assigned radio frequencies for not only voice communications, but also medical data such as EKG rhythms. Such systems can use carrier tones or digital encryption to transmit data. The system must have the ability to establish a baseline data set through the use of calibration signals or error correcting software to ensure data accuracy. Systems using telemetry must also adhere to FCC requirements for data transmission.

2.4 Interagency Communications (for resource and disaster coordination)

EMS communications systems should provide a means of communication to enable medical and logistical coordination between EMS field personnel, emergency department personnel and other agencies. If necessary regional or statewide coordination may be necessary based on the EMS operational plan submitted by the provider to the Department of Health and Family Services.

Local Coordination - The EMS communications system must have the capability for mobile and portable radios to communicate between agencies. EMS communications systems should be able to describe their communications capability with mutual aid responding units when an emergency requires multiple EMS agency vehicle response.

Regional Coordination - EMS agencies should establish resource coordination (e.g. first responder, ambulance and other EMS resources) to ensure that the highest level of care required is available to the patient. The EMS communications system should provide for coordination of EMS resources. EMS agencies should consider their involvement in large-scale disasters and anticipate the need for interagency communications. Preplanning with local Emergency Management agencies is an important aspect of interoperability on agencies' communication systems.

Intercept and air medical – The local ambulance service must be able to describe how communications takes place for ambulance intercepts and air medical transports.

- This includes a means of communication between units once they are dispatched and the ability to communicate to arrange for the transfer of patient care.
- In the case of air medical transports, .this includes a means of communication between air and ground units once they are dispatched. The recommended frequency for air medical communications with ground units while the air medical unit is on the way to the landing zone is MARC 2. See Section 3.2 for more information.

Back-up Communications - The concept of back-up communications is for disaster scenarios and redundancies in case of equipment failure. With regard to EMS communications specifically, the

concept of back-up communications as applied to base station or other fixed radio equipment means to:

- ❑ Enable dispatch and response communications to continue despite outage of the primary dispatch and response radio base station.
- ❑ Enable local medical coordination communications to continue despite outage of the primary base hospital.
- ❑ Minimize the need for additional, widespread training and maintains needed flow of EMS personnel.

A failure plan must include provisions for:

- ❑ Medical control
- ❑ Dispatch
- ❑ Inter-agency coordination

The requirement for each ambulance service to have four basic frequencies creates a mechanism for back-up communications. More detailed information on the required frequencies can be found in Section 2.6.

Telephone Interconnection - Cellular phone use may be used as a primary communications method for ambulance service providers. However, because of some of the limitations of cellular phone use, cellular phones can not take the place of the required radio equipment and frequencies. A more detailed list of the pros and cons of cellular phone vs. radio use can be found on page 19.

Cellular phone use for communication during interfacility transports is an area where cell phones may have an advantage over radios because it avoids the need to program in multiple PL codes for all receiving facilities. EMS providers may also wish to provide telephone interconnection capability with specialty information and treatment centers (ex.: poison center, burn centers) that may have statewide contact numbers.

2.5 Ambulance Licensure and Frequency Authorization

State approval for an EMS provider license would include authorization for the Ambulance Provider and First Responders that are approved for advanced skills to operate on all EMS frequencies as part of the State FCC licenses. Ambulance Providers have permission to use EMS frequencies as outlined and approved as part of their operational plan.

2.6 Frequencies & Tones for EMS Communications

EMS Providers - Standard EMS frequencies are 155.340, 155.400, 155.280, MARC 1, MARC 2 channels and Med Pairs. All EMS providers must have the capability to communicate on all these channels except for the Med Pairs and 155.280. Services that don't currently have this capability must add it when purchasing new equipment or when they reprogram equipment as part of an upgrade in level of care.

It is recommended that all First Responder services have the capability to communicate on 155.340, 155.400, 155.280 and the MARC channels. Use of these frequencies should be coordinated with the local ambulance provider and other related agencies.

There may be existing local systems that will be exceptions to the normal use of these frequencies as explained below. These exceptions should be taken into consideration on how they may impact other agencies and when planning for county and regional communication needs.

State EMS Frequency (155.340)– 155.340 is dedicated to Basic Life Support (BLS) and Advanced Life Support (ALS) communications with a primary purpose of communications between emergency medical field personnel and hospital personnel directing patient care prior to arrival at the hospital. A secondary purpose is on-scene medical coordination for mobile to mobile medical communications. This use should first be attempted on alternate frequencies (local, 155.280, MARC & then 155.340 in that order). The channel is for emergency medical care and should be limited to this purpose.

All ambulances licensed in Wisconsin are required to have the capability to communicate with their receiving hospitals and medical control hospital in Wisconsin. All hospitals are also required to have the ability to communicate on 155.340 so ambulances from any area can make contact with the facility. This can be accomplished through direct 155.340 communications or through a patch from a central dispatch center.

Hospital tones – Each hospital in Wisconsin is assigned a distinct CTCSS tone or PL (Private Line). The PL tones are specific to the individual hospital and are the same for 155.340 and 155.400 for each particular hospital. See Attachment D for this list.

State ALS Frequency (155.400) – 155.400 is dedicated to communications among ambulance and hospital personnel directing patient care prior to arrival at the hospital while using advanced skills. The primary & secondary use of this frequency should be for any ALS communications. This channel is for emergency medical care and should be limited to this purpose. Proper use would include communication for ALS intercepts and air medical contact.

Hospital tones – Each hospital in Wisconsin is assigned a CTCSS tone or PL (Private Lane). The tones for 155.340 and 155.400 are the same for each hospital. See Appendix D for this list.

Mutual Aid Radio Channels [MARC 1 (151.280/153.845) & MARC 2 (151.280)] – The Mutual Aid Radio Channels (MARC 1 & 2) are statewide interoperability frequencies. These frequencies are to be used for communication between public safety agencies and providers. See Appendix C for information on the MARC plan.

UHF MED Pairs – The 10 MED channels are designated for EMT-Paramedic and the new EMT-Intermediate (effective 2002) care. The MED channels are dedicated to communications among ambulance and hospital personnel directing patient care prior to arrival at the hospital at a paramedic and intermediate level. The channel is for emergency medical care/telemetry and should be limited to this purpose. A secondary use for air medical dispatch is acceptable as long as it doesn't interfere with the ability to communicate to provide patient care.

Med Mobile Receive channel frequencies are:	Med Mobile Transmit channel frequencies are:
Med 1 463.000	Med 1 468.000
Med 2 463.025	Med 2 468.025
Med 3 463.050	Med 3 468.050
Med 4 463.075	Med 4 468.075
Med 5 463.100	Med 5 468.100
Med 6 463.125	Med 6 468.125
Med 7 463.150	Med 7 468.150
Med 8 463.175	Med 8 468.175
Med 9 462.950	Med 9 467.950

Med 10 462.975 Med 10 467.975

Med 9 & 10 are primarily used for dispatch.

The Med Pair frequencies need to be coordinated in a geographical area. A requesting provider will normally be approved for Med Pairs 1-8, but normal use is usually limited to either Med Pairs 1-4 or 5-8. Use of these frequencies must be coordinated by the State EMS Communications Coordinator in conjunction with the dispatch center and ambulance services in the area of requested use.

State Coordination (155.280) – The primary purpose of 155.280 is for communications between hospitals and provides a backup to the public telephone system, particularly in times of disaster. A secondary purpose is interagency EMS field coordination for disasters. This frequency is optional for hospitals that have other means of inter-hospital communication.

Optional – recommended but not required:

WISTAC (WI Tactical channels 1-3) - Statewide on-scene frequencies for interagency coordination can occur on 154.265, 154.010, 154.130. The Wisconsin Department of Natural Resources (DNR) developed the Wisconsin Tactical (WISTAC) radio channel plan to address the need for on scene frequencies. These additional channels are available to emergency responders for on scene mobile and portable radio communications at fires and other situations throughout Wisconsin. WISTAC channels will be assigned for use by the Incident Commander.
See Appendix B for more information on the WISTAC channels.

Other Frequencies:

Trunking Systems (800 MHz/VHF/UHF) – Trunking systems can be used for ambulance communications between ambulance providers and hospitals. However, because of the need for ambulances to have the ability to communicate with any hospital in the state, a trunking system can not be the sole method of communication. The required VHF frequencies still apply as an adjunct to other methods of communication.

Air Medical Frequency Recommendations – Local providers must be able to describe how communication request takes place for air medical transports. This includes a means of communication between air and ground units once they are dispatched. The recommended frequency for air medical communications on the way to the landing zone is MARC 2. The reasons for using MARC 2 are:

1. MARC 2 is a universal public safety frequency that can be used by all landing zone personnel (first responders, EMTs, fire and law enforcement)
2. Designating MARC 2 as the standard frequency will avoid confusion in searching for the frequency to hook-up the air and ground units.
3. Designating MARC 2 will also avoid the inappropriate use of other frequencies that should be left open for other communication.

An alternative frequency choice would be 155.400. Regional plans should have the flexibility to use this option if it is a more practical frequency than MARC. Use of the Med Pairs for air medical dispatch is acceptable as long as it doesn't interfere with the ability to communicate to provide patient care

Use of any other frequencies must be in the air medical provider's operational plan and must address interface and that other frequencies are in addition to the required frequencies.

2.7 FCC Licenses

Overview of regulations – The Federal Communications Commission (FCC) regulates all radio communications within the United States. Radio communication is controlled by requiring licensure of all radio transmitters. The FCC rules govern who is eligible to license a transmitter and the specific frequencies and equipment configurations allowed for each frequency or service group. A copy of the FCC rules can be obtained from http://wireless.fcc.gov/rules.html or:

Superintendent of Documents
U.S. Government Printing Office
P.O. Box 371954
Pittsburgh, PA 15250-7954
(866) 512-1800 or (202) 512-1800
Fax (202) 512-2250

Prior to operating a radio transmitter, a license must be obtained from the FCC. A license can be obtained by completing Form 601, "FCC Application for Wireless Telecommunications Bureau Radio Service Authorization." Frequency coordination for the license is obtained by contacting the EMS Communications Coordinator at the State EMS Systems and Licensing Section, (608) 266-1568.

Emergency medical service providers (ambulances) and hospitals are required to obtain a FCC license for operating a base station (fixed location radio) and for mobile radios that are not covered by another license. Mobile & portable units operating on all frequencies can legally use that frequency through approval of any of the following methods:

- Holding their own license
- Hospital license from medical control hospital
- County-wide license
- Statewide license

Ambulance & First Responders services that are licensed by the State have permission to use the required EMS frequencies (155.340, 155.400, 155.280 and both MARC channels) in mobile and portable radios. The authorization to use these frequencies is part of approval for the provider license and applies to all mobile and portable radios, but does not apply to base (fixed) stations. In cases where the hospital uses additional frequencies, EMS mobile and portable radios can operate with authorization under a hospital's license. Providers can contact those hospitals with which they routinely communicate and request authorization under their license.

Providers requiring a FCC license should do the following:

1. When applying for a Public Safety Pool frequency that was formerly included in the Emergency Medical Radio Service (this includes 155.280, 155.340, 155.400, and the Med channels), first request a letter of support from the State EMS Systems and Licensing Section. This request should include:
   - that the applicant provides ongoing basic or advanced life support (if applying for 155.280, 155.340, 155.400, or the Med channels)
   - that the application is in conformance with the State's EMS Communication Plan
2. File the FCC Form 601 and the State EMS Systems and Licensing Section letter of support with the national frequency coordinator.

Section 3 – Local Provider and System Standards

The system requirements defined in the following section will be part of the EMS Operational Plan submitted to the Wisconsin State EMS Systems and Licensing Section for ambulance provider license approval.

3.0 Overview and Laws

There are required operational plan elements for every EMS license level. The two specific references to EMS communications in Administrative Code HFS 110, 111 and 112 are:

- A description of the communication system for providing medical control to EMT personnel. When installing communications equipment in ambulances, the ambulance service provider shall comply with the specifications and standards of the Wisconsin statewide emergency medical services communications system. All ambulances shall have direct radio contact with a hospital emergency department on the designated ambulance-to-hospital frequency.
- *In addition, the following additional requirement is included for EMT-intermediate and EMT-paramedic providers.* There shall be 2-way voice communication between every ambulance and the medical control physician, including, in addition to a mobile radio in the ambulance, a portable means of communication capable of being operated from the patient's side.
- A description of how calls are dispatched, including who does the dispatching, whether or not dispatchers are medically trained and whether or not dispatchers give pre-arrival instructions.

Reference note: WI Administrative Code HFS 110.08 (2) (f) & (g), HFS 111.07 (2) (f) & (g) and HFS 112.07 (2) (f) & (g).

There are also requirements in WI Administrative Code Trans 309 for the equipment in an ambulance. The two specific requirements are:

- Each ambulance shall have a permanently mounted radio to contact the hospital emergency department of the hospital it serves. There shall be a microphone and speaker permanently mounted in the patient compartment. The radio shall comply with Administrative Code HFS 110.

- Each ambulance service provider operating ambulances staffed either wholly or partially with EMTs practicing advance skills shall have remote 2-way communications for personnel when they are away from the ambulance

Reference note: WI Administrative Code Trans 309.18 (1) and (2).

NOTE: For a copy of the administrative code, write to the EMS Systems and Licensing Section, Division of Public Health, P.O. Box 2659, Madison WI 53701-2659 or download the information from the DHFS website at www.dhfs.state.wi.us/DPH_EMSIP/index.htm.

3.1 EMS Provider Requirements – Radio Frequency Capabilities

EMS Providers - Standard EMS frequencies are 155.340, 155.400, 155.280, MARC 1, MARC 2 channels and Med Pairs. All EMS providers must have the capability to communicate on all these channels except for the Med Pairs and 155.280. Services that don't currently have this capability must add it when purchasing new equipment or when they reprogram equipment as part of an upgrade in level of care. It is recommended that all First Responder services have the capability to communicate on 155.340, 155.400, 155.280 and the MARC channels. Use of these frequencies

should be coordinated with the local ambulance provider and other related agencies to avoid congestion on these frequencies.

Table of EMS Communication Frequencies

Frequency Name	Frequency	Primary EMS Use	Secondary Use
State EMS Frequency	155.340	BLS & ALS contact with hospitals for medical care	On-scene medical coordination from mobile to mobile (should be done on other channels, if possible
State ALS Frequency	155.400	ALS contact with hospitals for medical care	This includes ALS contact for intercepts and Air medical
Mutual Aid Radio Channels (2)	MARC 1 MARC 2	Statewide interagency communications	MARC 2 for landing zone coordination and air-scene communications
State Coordination	155.280	Communication between hospitals	Field coordination between agencies
UHF Med Pairs	Med Pairs	EMT-P & EMT-I to base for medical care	Air-medical dispatch is some areas
WI Tactical Channels (WISTAC) (3)	154.265 154.010 154.130	Statewide on-scene use for interagency coordination	
Trunking Systems	800 MHz/ VHF/UHF	Ambulance to hospital communications	

Frequencies in bold are required for ambulance providers. More information on EMS frequencies can be found in Section 2.6, pages 13-15.

3.2 EMS Equipment Needs and Requirements

Ambulance: Must have a primary and back-up means of communication. Must have a VHF radio with the following specifications:

- VHF radio with the four required frequencies
- PLs, local or all state – Must have PL tones for local hospitals, hospitals in adjacent counties and hospitals where you routinely do emergency transports. Providers don't need to have PL tones for all hospitals in the State. Interfacility transports can be done by cell phone.
- Required radio in patient compartment.
- 25-100 Watts depending on what is appropriate for the area served. Higher power is recommended for rural areas with large coverage areas or services that have unique radio coverage issues.

Hospital: Should have a VHF radio with 155.340, 155.280, 155.400. Med Pairs are optional, but recommended for ALS communications.
An emergency department phone number for ambulance contact is also recommended.

3.3 Considerations in setting up your communication systems and purchasing equipment

These are questions you need to consider in completing the communications component of your EMS operational plan. Although not all of these questions have to be addressed in the operational plan, they should all be considered as you set up your communication system.

Dispatch Considerations

1. How do citizens access EMS?
   - ❑ E911
   - ❑ 911
   - ❑ Seven digit phone line
2. How are you dispatched?
   - ❑ Radio/Pager
   - ❑ Telephone
   - ❑ Mobile data terminal
3. Who does your dispatching?
   - ❑ Law Enforcement
   - ❑ County public safety
   - ❑ Private company
   - ❑ Other _____
4. Are your dispatchers trained to give pre-arrival instructions?
   - ❑ Yes
   - ❑ No

Response Considerations

1. What is your communication link to other public safety agencies such as law enforcement and fire departments (method/frequency)?
2. Do you have intercept agreements with ALS? If yes, how do you communicate with them (method/frequency)?
3. Do you use air medical for transports? If yes, how do you communicate with them (method/frequency)? ***recommendation: MARC 2, then 155.400***
4. Do you have telecommunications ability with your first responders? If yes, how do you communicate with them (method/frequency)?
5. If you provide service for special events outside your primary service area, what is the method of contact with the local provider, hospital, dispatch center and medical control for special events?
6. If you provide service for interfacility transports outside your primary service area, what is the method of contact with the receiving hospital and medical control during transport.

Medical Control Considerations

1. Describe method(s) for contact with medical control
   - ❑ 155.400
   - ❑ 155.340
   - ❑ Med Pairs
   - ❑ Cell phone
   - ❑ Other _____
2. What is the method to contact the receiving hospital during interfacility transports if it is different than method to contact medical control.
3. If applicable what is your method for telemetry?.

Communications Equipment Considerations

1. How large is your coverage area and will your equipment cover that entire area? How did you test your coverage area to determine the extent of communications coverage?
2. Are there any unique geographical areas that may affect communications coverage such as forests, hills, buildings, etc.?
3. Did you consider both daily needs and "worst case scenarios" in determining your communication needs, including a back-up means of communication?
4. What frequencies and codes do you need programmed into your radio, in addition to the four required frequencies?
    - ❑ Local hospital tones
    - ❑ Regional hospital tones
    - ❑ Dispatch frequency
    - ❑ Med Pairs
    - ❑ WISTAC
    - ❑ Others _____

Radio vs. Phone use

Pros and Cons for Radio vs. Cellular phone use:

PROS –Two-way radio communication	**CONS -Two-way radio communication**
❑ Local control ❑ Paging ❑ Monitor other agencies ❑ Broadcast capabilities ❑ Multi channel ❑ Direct contact on talk-around channels ❑ One in place, ongoing costs are minimal ❑ Priority access	❑ Cost of implementation and operation ❑ Communications can be monitored ❑ Coverage area dependent on related equipment (towers, etc.) ❑ Can't provide telemetry ❑ Interference from other users
PROS – Cellular phone	**CONS – Cellular phone**
❑ Good voice quality in strong cell area ❑ Large number of available channels ❑ Communications aren't monitored ❑ Can provide limited telemetry ❑ Access to translation services	❑ Dependent on location and availability of cell tower ❑ Can only talk to one location (can't broadcast) ❑ Cell system will be overloaded in a disaster ❑ Can't interrupt an ongoing conversation ❑ Vulnerable to availability of an open phone line ❑ Battery life ❑ Beyond local system control

APPENDICES:

A - Detailed Table of EMS Communication Frequencies

B – WISTAC Frequencies

C - Wisconsin Vhf Mutual Aid Channels

D – Wisconsin Hospital Tones for 155.340

E – 911 Coverage in Wisconsin

APPENDIX A - DETAILED TABLE OF EMS COMMUNICATION FREQUENCIES

Frequency Name	Frequency	Tone	Call Sign	Primary Use	Secondary Use
State EMS	**155.340**	Varies by hospital		BLS & ALS contact with hospitals for medical care	On-scene medical coordination from mobile to mobile (should be done on other channels, if possible
State ALS	**155.400**	Varies by hospital		ALS contact with hospitals for medical care	This includes ALS contact for intercepts and Air medical
Mutual Aid Radio Channels (2)	**MARC 1 151.280 (receive)/ 153.845(transmit)** **MARC 2 151.280**	136.5 136.5	WNPG812 WNPG812	Statewide interagency communications	MARC 2 for landing zone coordination and air-scene communications
State Coordination	155.280			Communication between hospitals	Field coordination between agencies
UHF Med Pairs	Receive / Transmit Med 1 463.000 / Med 1 468.000 Med 2 463.025 / Med 2 468.025 Med 3 463.050 / Med 3 468.050 Med 4 463.075 / Med 4 468.075 Med 5 463.100 / Med 5 468.100 Med 6 463.125 / Med 6 468.125 Med 7 463.150 / Med 7 468.150 Med 8 463.175 / Med 8 468.175 Med 9 462.950 / Med 9 467.950 Med 10 462.975 / Med 10 467.975	Varies by hospital	Varies by hospital	EMT-P & EMT-I to base for medical care	Air-medical dispatch is some areas
WI Tactical Channels (WISTAC) (3)	WISTAC 1 154.265 WISTAC 2 154.010 WISTAC 3 154.130	88.5 71.9 82.5	KO2099 KO2099 KO2099	Statewide on-scene use for interagency coordination	
Trunking Systems	800 MHz/VHF/UHF	N/A	Varies by system	Ambulance to hospital communications	

APPENDIX B - WISCONSIN TACTICAL "WISTAC"

Radio Channel Plan

The Wisconsin Department of Natural Resources (DNR) developed the Wisconsin Tactical (WISTAC) radio channel plan to address the need for on scene frequencies. Additional channels are available to emergency responders for on scene mobile and portable radio communications at fires and other situations throughout Wisconsin.

WISTAC channels will be assigned for use by the Incident Commander.

Use of WISTAC channels shall fall under the statewide FCC license callsign KO2099 held by the State of Wisconsin. Authorization for use of the WISTAC channels is obtained by making written request to Frequency Coordinator, Bureau of Communications, POB 7912, Madison, WI 53707-7912. The Frequency Coordinator's phone number is 608-266-2497.

When transmitting on WISTAC channels, FCC callsign "KO2099" shall be used at the end of each conversation or series of transmissions, in addition to the use of local agency unit identifiers.

Frequency	Tone	Name	Call sign	
154.295	none	FIRECOM	KO2099	
154.265	88.5	WISTAC 1	KO2099	
154.010	71.9	WISTAC 2	KO2099	
154.130	82.5	WISTAC 3	KO2099	
151.280	136.5	MARC 1	WNPG812	(153.845 transmit)
151.280	136.5	MARC 2	WNPG812	

Tone use is required on transmit. Tone use is recommended on receive but may be omitted based on local needs. See the Fire Interagency Radio Emergency Communications (FIRECOM) and Mutual Aid Radio Channel (MARC) plans for additional information on these channels.

The WISTAC channels have some geographic restrictions on use due to existing users. A given WISTAC channel may not be used within the area of the counties and municipalities listed below for it without prior arrangement with the affected county or municipality.

WISTAC 1 154.265 Use is restricted in the area of:
Columbia, Marathon, Marquette, Milwaukee, Sheboygan, Wood Counties, PoySippi

WISTAC 2 154.010 Use is restricted in the area of:
Eau Claire, Fond du Lac, Green Lake, Manitowoc, Marinette, Milwaukee, Washington, Waushara, Wood Counties, Gratiot, Linn, Newbold, Westby, Whitewater

WISTAC 3 154.130 Use is restricted in the area of:
Bayfield, Brown, La Crosse, Marquette, Pierce Counties, Greenwood, Manitowish Waters, Milwaukee

APPENDIX C - WISCONSIN VHF MUTUAL AID CHANNELS

The communications interoperability standard for all Wisconsin public safety agencies operating on the VHF frequency band is to equip all mobile and portable radios with the appropriate discipline specific channel(s) and the MARC and WISTAC channels.

TX FREQ	TX TONE	RX FREQ	RX TONE	NAME	STATE CALLSIGN	USE
155.475	CSQ	155.475	CSQ	WISPERN	KA6570	Law Enforcement
155.370	CSQ	155.370	CSQ	POINT	KA6570	Law Enforcement
154.295	CSQ	154.295	CSQ	FIRECOM	KO2099	Fire
155.340	CSQ	155.340	CSQ	STATE EMS	KNJT265	EMS
156.000	136.5	156.000	136.5	WEM CAR	KGT483	Emerg. Management
153.845	136.5	151.280	136.5	MARC1	WNPG812	All Public Safety
151.280	136.5	151.280	136.5	MARC2	WNPG812	All Public Safety
154.265	88.5	154.265	88.5	WISTAC1	KO2099	All Public Safety
154.010	71.9	154.010	71.9	WISTAC2	KO2099	All Public Safety
154.130	82.5	154.130	82.5	WISTAC3	KO2099	All Public Safety

Authorization for mobile use of these channels is obtained as follows:

WISPERN	WISPERN Board and FCC licensing or letter of authorization
POINT	FCC licensing or letter of authorization
FIRECOM	FCC licensing or letter of authorization
STATE EMS	Letter of authorization from a licensed hospital
WEM CAR	Letter of authorization from WI Emergency Management
MARC	Letter of authorization from State Patrol
WISTAC	Letter of authorization from State Patrol

For more information contact:
Carl Guse, Frequency Specialist
Wisconsin State Patrol, Bureau of Communications, POB 7912, Madison WI 53707-7912
608-266-2497
608-267-4495 fax
carl.guse@dot.state.wi.us mailto:carl.guse@dot.state.wi.us

APPENDIX D - WISCONSIN HOSPITAL TONES FOR 155.340

CITY	HOSPITAL	TONE	TONE	ENCODE	TELEPHONE
Amery	Apple River Valley Memorial Hosp	131.8	3B	1-608622	715 268 7151
Antigo	Langlade County Memorial Hosp	88.5	YB	1-606222	715 623 2331
Appleton	Appleton Medical Center	110.9	2Z	1-607722	920 731 4101
Appleton	St. Elizabeth's	107.2	1B	1-607822	920 738 2000
Arcadia	St. Joseph's	131.8	3B	1-620622	608 323 3341
Ashland	Memorial Medical Center	107.2	1B	6-824563	715 682 1153
Baldwin	Baldwin Hospital, Inc.	82.5	YZ	1-609622	715 684 3311
Baraboo	St. Clare Hospital	100.0	1Z	1-406422	608 356 5561
Barron	Barron Memorial Medical Center	82.5	YZ	1-600422	715 537 3186
Beaver Dam	Beaver Dam Community Hospital, Inc.	114.8	2A	1-406922	920 887 7181
Beloit	Beloit Memorial Hospital	118.8	2B	1-248522	608 364 5011
Berlin	Berlin Memorial Hospital	91.5	ZZ	1-402622	920 361 1313
Black River Falls	Black River Memorial Hospital	162.2	5B	1-605822	715 284 5361
Bloomer	Bloomer Community Memorial Hospital	206.5	8Z	1-602922	715 568 2000
Boscobel	Boscobel Area Health Care	123.0	3Z	1-407922	608 375 4112
Brookfield	Elmbrook Memorial Hospital	103.5	1A	1-822222	414 785 2000
Burlington	Memorial Hospital of Burlington	110.9	2Z	1-693242	414 763 2411
Chilton	Calumet Medical Center	123.0	3Z	1-428722	920 849 2386
Chippewa Falls	St. Joseph's Hospital	114.8	2A	1-625622	715 726 3220
Columbus	Columbus Community Hospital	136.5	4Z	1-428022	920 623 2200
Cudahy	St. Luke's South Shore	156.7	5A	1-459022	414 489 9000
Cumberland	Cumberland Memorial Hospital	146.2	4B	1-600522	715 822 2741
Darlington	Memorial Hospital of LaFayette County	114.8	2A	1-408822	608 776 4466
Dodgeville	Memorial Hospital of Iowa County	206.5	8Z	1-429822	608 935 2711
Durand	Chippewa Valley Area Hospital	186.2	7Z	1-608222	715 672 4211
Eagle River	Eagle River Memorial Hospital	118.8	2B	1-620922	715 479 7411
Eau Claire	Luther Hospital	110.9	2Z	1-605422	715 839 3311
Eau Claire	Sacred Heart Hospital	110.9	2Z	1-605622	715 839 4121
Edgerton	Memorial Community Hospital	136.5	4Z	1-428422	608 884 3441
Elkhorn	Lakeland Medical Center	114.8	2A	1-332960	414 741 2120
Fond du Lac	St. Agnes Hospital	97.4	ZB	1-404922	920 929 2300
Fort Atkinson	Ft. Atkinson Memorial Hospital	97.4	ZB	1-409222	414 568 5000
Freindship	Adams County Memorial Hospital	173.8	6A	1-339333	608 339 3331

CITY	HOSPITAL	TONE	TONE	ENCODE	TELEPHONE
Grantsburg	Burnett Medical Center, Inc.	110.9	2Z	1-602822	715 463 5353
Green Bay	St. Mary's Hospital Medical Center	151.4	5Z	1-602222	920 498 4560
Green Bay	St. Vincent's Hospital	173.8	6A	1-602422	920 433 8383
Hartford	Hartford Memorial Hospital	167.9	6Z	1-626622	414 673 2300
Hayward	Hayward Memorial Hospital	100.0	1Z	1-624922	715 634 8911
Hillsboro	St. Joseph's Hospital	123.0	3Z	1-406022	608 489 2211
Hudson	Hudson Memorial Hospital	167.9	6Z	1-609722	715 386 9321
Janesville	Mercy Hospital	100.0	1Z	1-428522	608 756 6000
Kenosha	Aurora Medical Center	107.2	1B	1-428922	414 942 5640
Kenosha	Kenosha Hospital and Medical Center	107.2	1B	1-428722	414 656 2011
Kenosha	St. Catherine's Hospital	107.2	1B	1-428822	414 656 3011
Keshena	Menominee Tribal Clinic	146.2	4B	1-626722	715 799 3361
Kewaunee	St. Mary's Kewaunee Area Memorial Hospital	82.5	YZ	1-606022	920 388 2210
LaCrosse	LaCrosse Lutheran Hospital	97.4	ZB	1-428822	608 785 0530
LaCrosse	St. Francis Medical Center	97.4	ZB	1-428422	608 785 0940
Ladysmith	Rusk County Memorial Hospital	118.8	2B	1-429722	715 532 5561
Lancaster	Lancaster Memorial Hospital	123.0	3Z	1-408222	608 723 2143
Madison	Meriter Park Hospital	167.9	6Z	1-445622	608 267 6000
Madison	St. Mary's Hospital Medical Center	167.9	6Z	1-445622	608 251 6100
Madison	University of Wisconsin Hospital and Clinics	167.9	6Z	1-445622	608 262 2398
Madison	Wm S. Middleton Memorial Veterans Administration	167.9	6Z	1-445622	608 255 2345
Manitowoc	Holy Family Memorial Medical Center	179.9	6B	1-404522	920 684 2011
Marinette	Bay Area Medical Center	156.7	5A	1-607022	715 735 6621
Marshield	St. Joseph's Hospital	82.5	YZ	1-624022	715 387 7676
Mauston	Hess Memorial Hospital	82.5	YZ	1-626022	608 847 6161
Medford	Memorial Hospital of Taylor County	88.5	YB	1-625822	715 748 8107
Menomonee Falls	Community Memorial Hospital	173.8	6A	1-409522	414 251 1000
Menomonie	Myrtle Werth Medical Center	100.0	1Z	1-605222	715 235 5531
Mequon	St. Mary's Hospital – Ozaukee	206.5	8Z	1-430222	414 243 7373
Merrill	Good Samaritan Health Center	85.4	YA	1-606422	715 536 5511
Milwaukee	Children's Hospital of Wisconsin	156.7	5A	1-459022	414 266 2000
Milwaukee	Columbia Hospital	156.7	5A	1-459022	414 961 3300
Milwaukee	Sinai Samaritan Medical Center	156.7	5A	1-459022	414 283 6666

CITY	HOSPITAL	TONE	TONE	ENCODE	TELEPHONE
Milwaukee	Northwest General Hospital	156.7	5A	1-459022	414 447 8543
Milwaukee	St. Francis Hospital	156.7	5A	1-459022	414 647 5165
Milwaukee	St. Joseph's Hospital	156.7	5A	1-459022	414 447 2171
Milwaukee	St. Luke's Medical Center	156.7	5A	1-459022	414 649 6333
Milwaukee	St. Mary's Hospital	156.7	5A	1-459022	414 291 1200
Milwaukee	St. Michael Hospital	156.7	5A	1-459022	414 527 8000
Monroe	Monroe Clinic and Hospital	114.8	2A	1-332801	608 324 1160
Neenah	Theda Clark Memorial Hospital	141.3	4A	1-402722	414 729 3100
Neillsville	Memorial Hospital, Inc.	85.4	YA	1-625422	715 743 3101
New London	New London Family Medical Center	100.0	1Z	1-622822	920 982 5330
New Richmond	Holy Family Hospital	127.3	3A	1-624722	715 246 2101
Oconomowoc	Memorial Hospital of Oconomowoc	131.8	3B	1-409622	414 569 9119
Oconto	Oconto Memorial Hospital	167.9	6Z	1-607222	920 834 8800
Oconto Falls	Community Memorial Hospital	103.5	1A	1-607422	920 846 3444
Osceola	Ladd Memorial Hospital	91.5	ZZ	1-604822	715 294 2111
Oshkosh	Mercy Medical Center of Oshkosh, Inc.	186.2	7Z	1-402822	920 236 2000
Osseo	Osseo Area Hospital	173.8	6A	1-620722	715 597 3121
Park Falls	Flambeau Hospital	146.2	4B	1-609422	715 762 2484
Platteville	Southwest Health Center	123.0	3Z	1-408522	608 348 2331
Plymouth	Valley View Medical Center	151.4	5Z	1-405622	920 893 1771
Portage	Divine Savior Hospital	162.2	5B	1-406822	608 742 4131
Prairie du Chein	Prairie du Chein Memorial Hospital	151.4	5Z	1-428622	608 326 2431
Prairie du Sac	Sauk Prairie Memorial Hospital	141.3	4A	1-336433	608 643 3311
Racine	St. Luke's Hospital	162.2	5B	1-626522	414 636 2201
Racine	St. Mary's Medical Center	162.2	5B	1-626522	414V 636 4201
Reedsburg	Reedsburg Area Medical Center	103.5	1A	1-406622	608 524 6487
Rhinelander	St. Mary's Hospital	114.8	2A	1-625222	715 369 6700
Rice Lake	Lakeview Medical Center	192.8	7A	1-600622	715 234 1515
Richland Center	Richland Hospital, Inc.	118.8	2B	1-407822	608 647 6321
Ripon	Ripon Medical Center	85.4	YA	1-428222	920 748 3101
River Falls	River Falls Area Hospital	85.4	YA	1-624622	715 425 6155
Shawano	Shawano Community Hospital	127.3	3A	1-620222	715 526 2111
Sheboygan	Sheboygan Memorial Medical Center	186.2	7Z	1-405922	920 457 5033

CITY	HOSPITAL	TONE	TONE	ENCODE	TELEPHONE
Sheboygan	St. Nicholas Hospital	146.2	4B	1-405822	920 459 8300
Shell Lake	Indianhead Medical Center	123.0	3Z	1-622222	715 468 7833
Sparta	St. Mary's Hospital	156.7	5A	2-692032	608 269 2132
Spooner	Spooner Community Memorial Hospital	123.0	3Z	1-622222	715 635 2111
St. Croix Falls	St. Croix Valley Memorial Hospital	203.5	M1	1-625522	715 483 3261
Stanley	Victory Medical Center	91.5	ZZ	1-604422	715 644 5571
Stevens Point	St. Michael's Hospital	206.5	8Z	1-609222	715 346 5000
Stoughton	Stoughton Hospital	91.5	ZZ	8-736611	608 873 6611
Sturgeon Bay	Door County Memorial Hospital	123.0	3Z	1-604622	920 743 6611
Superior	St. Mary's Hospital of Superior	151.4	5Z	1-625922	715 392 8281
Tomah	Tomah Memorial Hospital	156.7	5A	3-722080	608 372 2181
Tomahawk	Sacred Heart Hospital	85.4	YA	1-606522	715 453 7762
Two Rivers	Two Rivers Community Hospital	94.8	ZA	1-404722	920 793 1178
Viroqua	Vernon Memorial Hospital	167.9	6Z	1-624522	608 637 2101
Watertown	Watertown Memorial Hospital	88.5	YB	1-409422	920 261 4210
Waukesha	Waukesha Memorial Hospital	141.3	4A	1-420022	414 544 2267
Waupaca	Riverside Medical Center	203.5	M1	1-622922	715 258 1040
Waupun	Waupun Memorial Hospital	136.5	4Z	1-405422	920 324 5581
Wauwatosa	Froedtert Memorial Hospital	156.7	5A	1-459022	414 259 3000
Wausau	Wausau Hospital Center	167.9	6Z	1-625722	715 847 2121
West Allis	West Allis Memorial Hospital	156.7	5A	1-459022	414 546 6000
West Bend	St. Joseph's Community Hospital	94.8	ZA	1-407422	414 334 5533
Whitehall	Tri-County Memorial Hospital	107.2	1B	1-620822	715 538 4361
Wild Rose	Wild Rose Hospital	110.9	2Z	1-430522	920 622 3257
Wisconsin Rapids	Riverview Hospital	82.5	YZ	1-624422	715 423 6060
Woodruff	Howard Young Medical Center	114.8	2A	1-595683	715 356 8000

APPENDIX E - 911 COVERAGE IN WISCONSIN